response to temperature changes of the film 78 caused by exhaled air from the patient raising the temperature of the piezo-electric film to generate voltages which are thereafter processed. Thus it can be seen that the pizeo-electric film 78 is responsive to temperature changes characteristic of exhaled air.

Thus it can be seen that the apparatus provided by Bowers et al. is radially different from that disclosed and claimed by Applicants. Claim 1 for example calls for a change sensing sensor exposed to the acoustic space provided in the acoustical device for sensing the turbulence and/or pressure changes and/or sound in the respiratory air flow in the acoustic space. Claim 1 goes on to specify that the change sensing sensor serves as the sole means for sensing respiratory air flow from the patient. Thus it can be seen that in the breathing sensor 14 of Bowers et al., it is the piezo-electric film 78 which is provided for sensing temperature of exhaled air which is utilized for detecting breathing of the patient and that the microphone 98 is only used for sensing snoring sounds. Thus Applicants' apparatus is distinguishable from the teaching of Bowers et al. in that it provides a change sensing sensor for providing and electrical output and serves as the sole means for sensing respiratory air flow from the patient. In Bowers et al. the microphone 98 is not utilized for sensing turbulence and/or pressure changes and certainly does not serve as the sole means for sensing respiratory air flow from the patient because in Bowers et al. it is the piezo-electric film 78 which is utilized for that purpose. There is certainly no teaching in Bowers et al. that it would be possible to provide a real time signal indicative of breathing of the patient by providing an estimated volume of air flow. The language in col. 3, lines 39-43, certainly does not suggest to one in the art that it would be desirable to utilize a microphone for a change sensing sensor and utilizing means for processing the electrical output signal from the microphone for providing an estimated volume of air flow. Such an approach is not even remotely considered by Bowers et al. which merely senses breathing by the use of a piezo-electric film for measuring temperature of the exhaled air and for detecting snoring by use of a microphone 98.

It is therefore respectfully submitted that Claim 1 clearly defines invention over Bowers et al.

Claims 3 and 4 include the subject matter of Claim 1 and are patentable for the same reason as Claim 1.

R

Claim 9 is also dependent upon Claim 1 and is patentable for the same reason as Claim 1 and it calls for a body having a plurality of ports exposed to respiratory flow and in communication with the acoustical space. Claim 9 is patentable because it is dependent on Claim 1 and also because Bowers et al. does not disclose or suggest the specific construction called for in Claim 9.

Similarly Claims 10, 11, 12, 13 and 14 include the subject matter of Claim 1 and are patentable for the same reason as Claim 1. They also define additional structural features which are not shown by the references cited. For example Bowers et al. does not disclose apparatus in which loops are adapted to extend around the ears of the patient.

Independent method Claim 15 calls for the step of sensing turbulence and/or vibration and/or sound in the acoustic space and providing an electrical signal serving as the sole indication for respiratory air flow from the patient. It also calls for the step of providing an estimated volume of air flow to provide a real time indication of actual respiratory flow from the patient. As pointed out above, the microphone 98 in Bowers et al. is merely provided for detecting the sound of snoring and certainly there is no attempt using the microphone 98 to sense turbulence and/or vibration and to serve as the sole indication for respiratory air flow from the patient. Rather as pointed out above, a piezo-electric film 78 is utilized for sensing the temperature of exhaled air from the patient to provide an indication of breathing of the patient. No means is provided for providing an estimated volume of air flow from the patient as in Applicants' invention. It is therefore respectfully submitted that Claim 15 is clearly patentable over Bowers et al.

Claim 20 is dependent on Claim 15 and is patentable for the same reason as Claim 15. It also calls for the step of ascertaining the frequency of breathing. In Bowers et al. there is no attempt to ascertain the frequency of breathing.

Claim 22 is also dependent on Claim 15 and calls for the step of analyzing the estimated volume of air flow using rule-based decision making. As pointed out above, there is certainly no disclosure or suggestion in Bowers et al. to provide such a step.

Claim 25 is dependent on Claim 22 which is dependent on Claim 15 and is patentable for the same reason as Claim 15. In addition certainly in Bowers et al. there is no disclosure of classifying apnea and hypopnea events.

B

Independent Claim 26 is another apparatus claim and calls for a sensor exposed to the acoustic space for sensing turbulence and/or pressure changes and/or sounds in the respiratory air flow in the acoustic space and providing an electrical output signal serving as the sole means for sensing respiratory air flow from the patient. As pointed out above, such means is not disclosed by Bowers et al. and similarly Bowers et al. does not suggest or disclose the means for providing an estimated volume of air flow. It is therefore respectfully submitted that Claim 26 is patentable over Bowers et al.

In view of the foregoing, it is submitted that all of the claims pending in the application are allowable and that the application should be passed to issue.

Respectfully submitted,

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